

## **DRAFT**

### **Area-Wide Soil Contamination Task Force – Meeting 3 May 9, 2002, Bellevue, WA**

#### **Meeting Summary**

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The Area-Wide Soil Contamination Task Force met for the third time on May 9, 2002 in Bellevue. The objectives of this meeting were to:

- Learn about the health effects of arsenic and lead exposure and what the communities of Trail, BC and Pierce County have done to address risks of exposure.
- Provide guidance and direction on ongoing and future project work, including case studies of institutional approaches to address area-wide contamination, ways of categorizing area-wide contamination sites, types of remedial actions that might be taken to address area-wide contamination, and preliminary estimates of the nature and extent of area-wide contamination in Washington

A few changes to the Task Force membership were announced at the beginning of the meeting. Marsha Riggers has replaced Mike Bigelow as the representative from the Washington State Office of Schools and Public Instruction. Jude Van Buren has replaced Bill White as the *ex officio* representative for the Washington State Department of Health. In addition, Jeff Andrienas of AIG has resigned from the Task Force. The chartering agencies are looking for a replacement for Mr. Andrienas from the insurance industry.

#### **Communication Report and Forecast**

As part of the communication report and forecast for this meeting, Task Force members discussed two draft documents: a project overview fact sheet and key messages and questions and answers on the project and arsenic and lead soil contamination more generally. The Department of Ecology (Ecology) developed these documents for Task Force members and agency staff to use in responding to inquiries about the project, consistent with the project communication principles. Task Force members recommended that the agencies add an explanation of low-to-moderate level contamination to the questions and answers. Task Force members also recommended that the agencies clarify the health risks associated with ongoing exposure to elevated levels of arsenic and lead in soil, although they had no specific recommendations for how this clarification might be achieved.

The Departments of Ecology and Health and several Task Force members reported on press contacts and other communications about the project that occurred since the April Task Force meeting. These inquiries ranged from general questions about the project to specific questions about sampling in Yakima County, what schools have elevated levels of arsenic and lead in soils, and individual exposures to arsenic and lead in south Seattle and Normandy Park. Ecology also noted that it held a briefing about the project with state legislators from the Yakima area. Upcoming project communications include presentations for the Association of Washington Businesses, the Washington

Association of Realtors, and Chelan County Commissioners and a second briefing for Yakima-area legislators.

## **Panel Discussion on the Health Effects of Arsenic and Lead**

### *Arsenic in Soil*

Jim W. White of the Department of Health started the panel discussion with a presentation on the health effects of arsenic exposure from soil. He noted that public health agencies use a precautionary approach for determining whether arsenic in soil is a health hazard, relying on knowledge that arsenic is harmful and that people may unintentionally ingest arsenic-contaminated soil and be at risk of future health problems from long-term exposure even though health effects from this exposure may not be observed right away. He explained that health risks are estimated based on estimates of toxicity and exposure and that there are more than 30 distinct health effects of arsenic exposure including several types of cancer and cardiovascular problems. Dr. White also discussed estimates of arsenic toxicity, estimates of soil exposure, and risk calculations behind the Model Toxics Control Act arsenic soil cleanup standard of 20 parts per million.

### *Childhood Lead Poisoning in Washington State*

Marcia Mueller of the Department of Health gave a presentation on childhood lead poisoning in Washington. She noted that infants and young children are most at risk of adverse health effects from lead exposure and that the primary pathways of exposure are ingestion and inhalation from sources such as lead-based paint and lead-contaminated soil. Health effects of lead exposure include behavior and learning problems and damage to the brain, nervous system, and other organ systems. Ms. Mueller also reported that about 1% of children tested in Washington overall have elevated blood lead levels, with greater numbers of children affected in certain areas.

### *Biogeochemistry of Arsenic and Lead in Soil*

Frank Peryea of the Washington State University Tree Fruit Research and Extension Center described the chemical characteristics and behavior of arsenic and lead in soil. Arsenic exists in soils as arsenate ( $\text{AsO}_4$ ) and, especially in wetter soils, arsenite ( $\text{AsO}_3$ ). Lead exists in soils as a free metal ion ( $\text{Pb}^+$ ) or can be bound in organic matter complexes (Pb-organic). Although there are many similarities between arsenic and lead, their chemistry in soil does differ in important ways. For example, the solubility of lead decreases as soil pH increases (the soil becomes less acidic), yet for arsenic, solubility is lowest in neutral soils and increases as the soil becomes either more or less acidic. One implication of the differences between arsenic and lead is that techniques for controlling the bioavailability and solubility of arsenic and lead in soil by managing pH, managing organic matter, or adding phosphorus may not be equally effective for soils containing both chemicals.

### *Trail, BC Experience Managing Risks from Lead Exposure*

Steve Hilts of Teck Cominco Metals presented an overview of risk management strategies used in Trail, BC, where a lead/zinc smelter currently operates. Activities to study and reduce lead exposure in Trail have included a blood-lead screening program, case management and home-based interventions, comprehensive education programs, community dust abatement projects, exposure pathways investigations, dust control

trials, soil amendment studies, and changes in smelter technologies. Children's blood lead levels have decreased considerably in Trail, particularly since the new, cleaner smelter started operating in 1997. Besides the change in smelter operations, which clearly decreased lead exposure, the Trail Lead Program found that vacuuming homes with HEPA-filter equipped vacuum cleaners every two weeks reduced lead exposure and that one-on-one counseling has had some effect on reducing children's blood lead levels.

#### *Community Protection Measures in Ruston and North Tacoma*

Glenn Rollins of the Tacoma-Pierce County Health Department gave a presentation on community protection measures used in Pierce County to help people reduce their exposure to arsenic and lead. He described the cleanup and educational activities that have occurred in the area within a 1-mile radius of the former Asarco smelter in Ruston and the study of the 200-square-mile area that was potentially affected by contamination from the Tacoma Smelter Plume. Through the PACE program (Program for Area Cleanup Education), Mr. Rollins explained that the City of Tacoma and other agencies/organizations inform and educate people who live near the Asarco site about the elevated levels of arsenic and lead in soils and ways they can reduce their exposure.

Task Force members asked several clarifying questions of the panel presenters on exposure pathways, uncertainties regarding health risks, the effects of soil arsenic and lead on plants, and public reactions to information about arsenic and lead contamination in Trail and in Ruston/North Tacoma. A few Task Force and *ex officio* agency members commented that it was particularly helpful to learn about how communities in Trail and Pierce County responded to risks from arsenic and lead exposure.

#### **Update on Other Arsenic and Lead Activities**

Jim Pendowski of the Department of Ecology and Jude Van Buren of the Department of Health updated the Task Force on recent agency activities related to arsenic and lead. Mr. Pendowski noted that the Tacoma Smelter Plume Real Estate Advisory Group has expressed its willingness to share its findings with the Task Force this summer; that Ecology continues its work on the mainland King County study and sampling in Pierce County for the Tacoma Smelter Plume area; and that Okanogan County received a grant for soil sampling in child-use areas. He also said that Dave Bradley of Ecology, Frank Peryea, and Eric Weber of Landau Associates would share their presentations on "Arsenic and Old Lead" for the Association of Washington Businesses environmental conference on June 6-7 with the Task Force before the conference.

Jude Van Buren told the Task Force that the Department of Health would be providing blood-lead screening for residents of south King County as the Department did before for residents of Vashon and Maury Islands. In addition, the Department is studying how to comply with Environmental Protection Agency regulations regarding arsenic in ground water and the extent of arsenic contamination in shellfish.

## **Updates on Information Survey Results and the Draft Public Involvement Plan**

Elizabeth McManus of Ross and Associates distributed the final memorandum on the information survey and the draft project public involvement plan to the Task Force and briefly described these documents.

- The information survey memorandum, which documents the initial, broad-based information gathering effort that occurred for this project, contains summaries of relevant findings from the interviews and annotated bibliographies for each of the project's main analytic areas. The contractor team plans to conduct three additional interviews for the information survey and follow up with other research suggestions from the Task Force; results from this follow-up research will be shared with the Task Force by e-mail.
- The draft public involvement plan outlines the plan for public involvement for the entire project. Ms. McManus noted that the Task Force is part, but not all, of the public involvement for the project, and that the agencies have broader communication responsibilities. She asked the Task Force to review the draft plan before the next Task Force meeting and to consider two questions:
  - *Does the plan meet the needs of Task Force members' constituencies?*
  - *Are there additional points in the Task Force process where public involvement should be solicited?*

## **Institutional Frameworks – Case Studies and Institutional Alternatives**

Lori Ahouse of Ross & Associates presented an overview of the planned content of the institutional frameworks case studies and the selection process and criteria used to choose the first three case studies. She also updated the Task Force on the status of ongoing research on the three initial case studies:

- Lowell, MA brownfields redevelopment
- Burlington County, NJ agricultural lands development
- Bunker Hill, ID mining/smelter site cleanup

Based on this discussion, Task Force members suggested that the following content be included in the case studies:

- Public perception of the health risk or problem
- Relative changes in housing prices
- A description of community involvement and education

The Task Force also recommended that the terms used to describe institutional controls and other protective measures in the case studies should be clearly defined and consistent across project analytic areas.

In addition, a few Task Force members suggested people to interview about the Bunker Hill site, including:

- The primary consultant for the Bunker Hill site
- Dennis Rhodes, the planning director for West Richland, who was one of the early directors of the Bunker Hill site

- Sally Brown of the University of Washington's College of Forest Resources, who has done field research at Bunker Hill

#### *Selection of Additional Case Studies*

The Task Force discussed 11 possibilities for additional institutional frameworks case studies. Linda Hoffman of Ecology noted that the Task Force should be able to obtain any needed information on the Washington Pollution Liability Insurance Program for the project without having it as case study. A few Task Force members commented on how few agricultural sites there were in the list of potential case-study sites, which were drawn from the information survey and earlier suggestions from the Task Force. Members of the Task Force and facilitation team observed that it appears that there has not been much attention to the issue of historical pesticide contamination in other states as there has been for issues such as brownfields.

Through a dot-voting exercise, Task Force and *ex officio* agency members selected the following sites as the final two case studies:

- Barber Orchard, Waynesville, NC, a former apple orchard that has been partially developed into residential housing
- Verdesse Carter Park, Oakland, CA, a public park and residences built on and near a former battery factory

In addition, Task Force members suggested that the project team consider the institutional approaches, financing mechanisms, and institutional controls used in other potential case-study sites—in particular, the Murray, UT smelter site; the Anaconda, MT smelter site; and the Woburn, MA industrial site, which each received several votes—as part of the “toolbox” for this project.

The results from the research on the five case-study sites, including the two new sites, will be presented at the next Task Force meeting.

#### *Institutional Alternatives*

Lori Ahouse gave the Task Force a preview of the next phase of work for the institutional frameworks analytic area—the identification of institutional alternatives. The purpose of this work is to identify and characterize a range of institutional alternatives/process that might be used to address area-wide soil contamination, such as local planning and permitting, oversight by financial institutions, and the State voluntary cleanup process.

Task Force members suggested that the project team research what the States of Oregon and Florida are doing to study and/or address issues of lead arsenate pesticide residues in soils.

### **Protective Measures – Categories of Sites and Remedial Actions**

Kris Hendrickson of Landau Associates described three initial categories of sites within area-wide soil contamination areas—industrial/commercial properties, other properties prior to development, and other properties after development—and the criteria used to select these categories. She noted that the Protective Measures Work Group (Work

Group 2) plans to develop several exposure scenarios within each site category to further inform the evaluation of protective measures.

Ms. Hendrickson also described the range of protective measures the workgroup has identified that might be technically feasible for addressing area-wide arsenic and lead soil contamination. These measures include:

- Actions that remove contaminants (e.g., soil removal, phytoremediation)
- Actions that reduce mobility, toxicity, or exposure (e.g., capping, chemical treatment)
- Actions that limit property use (e.g., land-use regulations, education)
- No action (current or baseline conditions)

This spring and summer the workgroup will be analyzing the cost, protectiveness, permanence, and other features of the protective measures that it has identified as technically feasible.

The Task Force engaged in a vigorous discussion in response to this presentation. First, the Task Force debated whether a fourth category of sites might be needed for agricultural land not currently used for agricultural production, but for which future land uses or development were undetermined. The Task Force decided not to establish a separate category for these sites, but instead requested that these sites be considered part of the category of “other properties prior to development” and that the meaning of “non-agricultural properties” be clarified in the draft technical memorandum on site categories and remedial action technologies to reflect this discussion.

A few Task Force members commented that the language and presentation of the technical memorandum seemed very similar to Model Toxics Control Act (MTCA) documents such as a feasibility study. This raised concerns for some Task Force members about whether the analyses of site categories and protective measures would be too constrained by MTCA. Kris Hendrickson clarified that although the Protective Measures Work Group will be analyzing protective measures using some of the criteria from MTCA, the Task Force will be developing its own recommendations on tools and processes to address risks from area-wide soil contamination and that these recommendations are not limited by MTCA. The Task Force reiterated the need for terms (e.g., “remedial action,” “institutional control,” “engineering control”) to be clearly defined and used consistently.

Finally, one Task Force member suggested inviting someone from the Insurance Commissioner’s office to a future Task Force meeting to provide insights on the potential effects of various protective measures on homeowners’ insurance policies.

## **Nature and Extent – Preliminary Estimates and Confirmational Sampling Pilot Project**

### *Preliminary Estimates*

Julie Wilson of Landau Associates discussed progress in developing preliminary estimates of the nature and extent of arsenic and lead soil contamination in Washington. She reviewed the sources of data available for former smelter sites, discussed how

agricultural statistics will be used to estimate the potential loading of soil with arsenic and lead from past pesticide use, and sources of data for predicting lead in soil from leaded gasoline. She noted that the Nature and Extent Work Group (Work Group 1) would also be comparing estimates of pesticide contamination to actual soils data.

Task Force members suggested refinements to the preliminary estimates work, including determining the extent of formerly agricultural land that is now flooded and researching whether data are available on the deposition of leaded gas from small airplanes. Like Work Group 1, several Task Force members questioned whether arsenic-treated wood and lead-based paint were truly area-wide sources and therefore whether they were worth researching further for this project.

#### *Confirmational Sampling Pilot Project*

Rick Roeder of the Department of Ecology reviewed the status of the confirmational sampling pilot project. He noted that sampling plans and a system for identifying parcels had been developed and that Ecology continues to work with legislative representatives, the Attorney General's Office, and other parties to resolve questions of disclosure and other issues. Ecology expects that sampling in Yakima County will begin in September and that letters requesting access for sampling will be distributed in August.

#### **Public Comments**

May Gerstle, the chair of the Vashon Island heavy metals remediation committee, had comments and questions for the agencies and Task Force members.

- First, Ms. Gerstle expressed frustration over having to wait until the end of the day to participate in the meeting and asked that the Task Force and facilitation team consider allowing the public to ask questions and/or comment earlier in the day after members around the table have an opportunity to speak.
- Second, Ms. Gerstle encouraged the agencies and Task Force to provide information to the public early in the project and to consider this request during the discussion of the public involvement plan at the next Task Force meeting. She noted that Vashon Island residents have been frustrated in the past about the time it has taken to receive information, but that when Ecology has distributed question-and-answer documents it has greatly eased people's concerns.
- Finally, Ms. Gerstle asked where residents could obtain certified, clean soil and that the Task Force should consider this issue when evaluating the feasibility of remedies involving soil replacement.

A few Task Force members suggested that residents contact the local Master Gardeners group or the Washington State University Extension Program for information on sources of clean soil or have laboratories test potential sources of soil. Jim Pendowski of Ecology noted that there is no formal program for soil certification.

Several Task Force members agreed that the public should have the opportunity to participate earlier in the meeting and had suggestions for additional ways to incorporate public comments during meetings. These suggestions included:

- Acknowledge members of the public at the beginning of meetings and ask them to sign in and introduce themselves

- Provide one or more additional formal opportunities for the public to comment including a time in the morning
- Allow 2-3 minutes for the public to ask questions after Task Force discussions
- Encourage people to pass notes to Task Force members or members of the facilitation team or provide a comment sheet so that comments or questions may be raised at appropriate times in the meeting

Task Force members also noted that the public could dominate meetings and make it difficult to stay on the agenda if public participation were not managed well. Bill Ross of Ross & Associates said that the facilitation team would talk with the Task Force co-chairs and develop a plan to accommodate an appropriate amount of additional public participation in Task Force meetings.

### **Meeting Wrap Up**

The Task Force co-chairs ended the meeting with some closing comments. Co-chair Steve Kelley challenged the agencies to start distributing educational materials to county commissioners, schools, and other constituencies and suggested perhaps including a chat room or bulletin board on the project's website. In addition to the agencies' communication efforts, co-chair Steve Gerritson said that he hopes the Task Force will produce its own educational materials later in the project that would be high quality, reflect clear thinking and research, and accurately characterize health risks.

### **Next Steps**

- The facilitation team and the Task Force co-chairs will develop a modified plan for managing public participation during Task Force meetings.
- The facilitation team will communicate with Task Force members individually and collectively before the next Task Force meeting. These communications will include e-mail messages on draft presentations about the project for the Association of Washington Businesses' upcoming environmental conference and updates on the activities of the Nature and Extent and Protective Measures workgroups, along with phone calls to each Task Force member to discuss project progress.
- The next Task Force meeting will be in Yakima on June 12 and will include a discussion of the draft public involvement plan, a report on case studies of institutional approaches to address area-wide soil contamination, and further discussion of remedial action technologies.



#### Members in Attendance

Loren Dunn, Riddell Williams for Washington Environmental Council  
Ted Gage, Washington State Office of Community Development  
Steve Gerritson, Sierra Club  
Jim Hazen, Washington Horticultural Association  
Linda Hoffman, Washington State Department of Ecology  
Steve Kelley, Windermere Real Estate, Wenatchee  
Steve Marek, Tacoma/Pierce County Health Department  
Laura Mrachek, Cascade Analytical  
Frank Peryea, Washington State University Tree Fruit Research and Extension Center  
Ray Paoletta, City of Yakima  
Randy Phillips, Chelan-Douglas Health District  
Paul Roberts, City of Everett  
Ken Stanton, Douglas County Commission  
Craig Trueblood, Preston Gates & Ellis  
Jude Van Buren, Washington State Department of Health  
Mike Wearne, Washington Mutual Bank  
Ann Wick, Washington State Department of Agriculture

#### Members Unable to Attend

Greg Firn, Wenatchee School District  
Scott McKinnie, Far West Agribusiness Association  
Marsha Riggers, Washington State Office of Schools and Public Instruction

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Julie Wilson, Landau Associates  
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